March 7, 2017

Via Electronic Mail and First Class Mail

U.S. Army Corps of Engineers
Attention: Mr. Stephen Pfeffer
stephen.d.pfeffer@usace.army.mil
New Orleans District
CEMVN-OD-S
7400 Leake Avenue
New Orleans, Louisiana 70118-3651

Re: Restoration Systems, LLC – Comments in Response to Interim Louisiana Wetland Rapid Assessment Method (LRAM)

Dear Mr. Pfeffer:

I am writing on behalf of Restoration Systems, LLC to provide comments in response to the U.S. Army Corps of Engineers (the "Corps"), New Orleans District ("CEMVN") Regulatory Branch release of the interim version of the Louisiana Wetland Rapid Assessment Method ("LRAM") for use in calculating compensatory mitigation requirements from jurisdictional wetland impacts. As a leading environmental restoration and mitigation banking firm, we fully support CEMVN's efforts to develop and implement a method to calculate compensatory mitigation requirements that ensures compliance with applicable regulations and law and provides consistent methods and repeatable results for determining compensatory mitigation requirements for all users. We agree that LRAM should provide an efficient and consistent method for quantifying adverse impacts associated with permit applications; however, we believe that more information is required to adequately evaluate environmental benefits associated with compensatory mitigation projects.

As discussed below, we are providing comments and recommendations to (i) modify the LRAM scoring system to assess mitigation sites (not impacts) to comply with existing laws and regulations and more accurately reflect the differences in ecological value, lift and risk provided by different mitigation types, and (ii) address issues related to LRAM's watershed approach and the expanded service areas for coastal marsh mitigation banks. Our comments and recommendations are limited to the coastal zone of Louisiana and will not increase the cost of private development and public works programs. Rather, our comments and recommendations are intended to modify LRAM to accurately evaluate the ecological value, lift and risk of different mitigation types, to appropriately apply the watershed approach, and to help achieve the purposes of the Clean Water Act.

BACKGROUND

A. Existing Mitigation Banks in Louisiana Coastal Service Areas

Restoration Systems has more than fifty (50) mitigation banks and turn-key restoration sites in nine states, including Louisiana. In particular, Restoration Systems owns the Jesuit Bend Mitigation Bank, a fully approved, successfully constructed mitigation bank with available credits (total credit acres: 247.7 with 123.8 released; total AAHUs from mitigation banking instrument: 110.83 with 55.41 released). For Phase I of Jesuit Bend Mitigation Bank, approximately 1.3 million cubic yards of sediment was dredged from a permitted Mississippi River borrow site (a renewable and sustainable sediment source) and hydraulically pumped and distributed at a target construction elevation of 0.8 feet, which is needed to sustain a healthy marsh environment. Phase II of the proposed project will also utilize dredged sediment from the Mississippi River in a similar manner through existing infrastructure installed for Phase I and will provide an additional 500 acres of mitigation credits. This dredged material contains a significant quantity of sand, which is ideal for marsh restoration because it results in limited settlement. The habitat restoration credits will be monitored over a seven-year period, under long-term management for fifty (50) years, and protected forever by a conservation servitude held by the Mississippi River Trust.

On April 8, 2016, the mitigation banking instrument ("MBI") for Jesuit Bend Mitigation Bank was signed. Upon signing of the MBI, Jesuit Bend Mitigation Bank was granted the Deltaic Plain as its service area. At the time of its MBI approval, Jesuit Bend Mitigation Bank was the only fresh-intermediate marsh mitigation bank to receive the entire Deltaic Plain as its primary service area.

Jesuit Bend Mitigation Bank has not only received a signed MBI, but has also received all local, state and federal permits and approvals, is constructed and planted and its mitigation work plan was coordinated with the Corps, National Marine Fisheries Service, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, the Louisiana Department of Natural Resources, and the Louisiana Department of Wildlife and Fisheries.

In addition to Jesuit Bend Mitigation Bank, Chef Menteur Pass Mitigation Bank is located within the Louisiana Deltaic Plain. Similar to Jesuit Bend, dredged material was used at Chef Menteur to convert shallow open water to emergent wetlands; however, unlike Jesuit Bend, the dredged material used at Chef Menteur was not dredged from a renewable sediment source.

Four other existing mitigation banks (Kilgore Plantation Mitigation Bank, Cypremort Teche Mitigation Bank, Lake Long Mitigation Bank, and Bayou Terrebonne Mitigation Bank) are located within the Louisiana Deltaic Plain. Unlike Jesuit Bend, each of these mitigation banks derives credits from the simple conversion of farmland/wet pasture to marsh, with the primary mitigation work plan component being degrading/gapping levees, backfilling ditches, installing earthen plugs, and/or removing culverts. At one point in time, Jesuit Bend was also farmland/wet pasture and was within a levee and actively drained. The former owners previously gapped the levee to facilitate hydrologic connectivity, essentially employing the same methods as these other fresh-intermediate marsh banks had done; however, Restoration Systems

took the next critical steps by completely removing the levee and then depositing renewable sediment to appropriate elevations to facilitate the growth of planted and natural vegetation. These elevations incorporated regional/local subsidence, geotechnical evaluations, soil compaction, sea-level rise and organic accretion to ensure long-term sustainability. However, Restoration Systems has not seen any evaluations of this manner in the determination of appropriate marsh elevations in these other "farmland to marsh" projects, which will likely result in these projects looking much like the Jesuit Bend Bank property prior to the restoration work completed by Restoration Systems. Thus, hydrologic restoration of agricultural fields is only a first step, and without adding sediment to achieve scientifically determined elevations, these banks will have only accomplished creating more open water, which is exactly what coastal Louisiana does not need.

Despite the significant difference in ecological benefits provided by these mitigation banks compared to Jesuit Bend, these banks received a similar LRAM score. A more detailed description of these mitigation banks is attached.

B. The Clean Water Act and the 2008 Mitigation Rule.

The objective of the Clean Water Act ("CWA") is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To further this goal, the CWA prohibits the discharge of dredged or fill material into waters of the United States unless a permit issued by the Corps or approved State under CWA Section 404 authorizes such a discharge. 33 U.S.C. § 1344. For every authorized discharge, the adverse impacts to wetlands, streams and other aquatic resources must be avoided and minimized to the extent practicable. For unavoidable impacts, compensatory mitigation is required to replace the loss of wetland and aquatic resource functions in the watershed. The goal of "no net loss" of wetland acres and functions dates back to 1989 and has been reaffirmed multiple times by the Corps and EPA. *See, e.g.*, Compensatory Mitigation Rule, 33 C.F.R. Part 332; 73 Fed. Reg. 19594 (Apr. 10, 2008) (the "2008 Mitigation Rule").

1. In making compensatory mitigation decisions, the Corps is required to consider "environmentally preferable" methods and must account for pre- and post-compensatory mitigation project site conditions.

"The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to waters of the United States authorized by DA permits." 33 C.F.R. § 332.3(a)(1). In making decisions with respect to compensatory mitigation, the Corps is required to consider "environmentally preferable" methods, including the ecological benefits of the mitigation, likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of compensatory mitigation. *Id.* Thus, compensatory mitigation decisions must be based on what is environmentally preferable. 73 Fed. Reg. at 19629.

When considering options for successfully providing compensatory mitigation, the Corps must also consider the type and location of compensatory mitigation. "In general, the required compensatory mitigation should be located within the same watershed as the impact site, and

should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses." 33 C.F.R. § 332.2(b)(1). With respect to impacts to aquatic resources in a coastal watershed (*i.e.*, watersheds that include a tidal waterbody), compensatory mitigation "should also be located in a coastal watershed where practicable." *Id.*

With respect to the location of the compensatory mitigation site, it "must be ecologically suitable for providing the desired aquatic resource functions. In determining the ecological suitability of the compensatory mitigation project site, the district engineer must consider, to the extent practicable, the following factors: . . . (iv) [c]ompatibility with adjacent land uses and watershed management plans; (v) [r]easonably foreseeable effects the compensatory mitigation project will have on ecologically important aquatic or terrestrial resources (*e.g.*, shallow sub-tidal habitat, mature forests), cultural sites, or habitat for federally- or state-listed threatened and endangered species; and (vi) [o]ther relevant factors including, but not limited to, . . . local or regional goals for the restoration or protection of particular habitat types or functions . . . ." 33 C.F.R. § 332.2(d)(1).

Finally, the number of credits assigned to a compensatory mitigation project "must reflect the difference between pre- and post-compensatory mitigation project site conditions, as determined by a functional or condition assessment or other suitable metric." 33 C.F.R. § 332.8(o)(3).

2. To establish compensatory mitigation, the Corps is required to use a watershed approach as long as it is practicable.

As long as it is practicable, the Corps is required to use a watershed approach to establish compensatory mitigation. 33 C.F.R. § 332.3(c)(1). A watershed approach considers a number of factors, including:

> [T]he types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape. It also considers the habitat requirements of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or habitat conservation programs. It includes the protection and maintenance of terrestrial resources, such as non-wetland riparian areas and uplands, when those resources contribute to or improve the overall ecological functioning of aquatic resources in the watershed. Compensatory mitigation requirements determined through the watershed approach should not focus exclusively on specific functions (*e.g.*, water quality or habitat for certain species), but should provide, where practicable, the suite of functions typically provided by the affected aquatic resource.

33 C.F.R. § 332.3(c)(2)(i). Location factors (*e.g.*, hydrology and surrounding land use) are also important considerations. "The identification and prioritization of resource needs should be as specific as possible, to enhance the usefulness of the approach in determining compensatory mitigation requirements." 33 C.F.R. § 332.3(c)(2)(iv).

"The size of the watershed addressed using a watershed approach should not be larger than is appropriate to ensure that the aquatic resources provided through compensation activities will effectively compensate for adverse environmental impacts resulting from activities authorized by DA permits. The district engineer should consider relevant environmental factors and appropriate locally developed standards and criteria when determining the appropriate watershed scale in guiding compensation activities." 33 C.F.R. § 332.3(c)(4).

The goal of the watershed approach is "to maintain and improve the quality and quantity of aquatic resources within watersheds through ***strategic selection*** of compensatory mitigation sites." 33 C.F.R. § 332.3(c)(1) (emphasis added). The "strategic selection" of a mitigation site should not be based on reduced expense, such as agricultural field conversion, but rather on the approaches that best contribute to offsetting environmental losses resulting from unavoidable impacts to waters of the United States and the long-term sustainability of coastal Louisiana, specifically the well-documented emphasis on the introduction of renewable sediment to the watershed.

C. The State of Louisiana Coastal Master Plan.

Louisiana has one of the largest expanses of coastal wetlands in the United States. These coastal wetlands, formed by the deltaic processes of the Mississippi River, are among the nation's most productive and important natural assets. These coastal wetlands (i) provide critical habitat for over 5 million birds wintering in Louisiana; (ii) along with barrier island systems, provide protection to Louisiana's coast, including significant commercial and industrial facilities (including a significant portion of energy production from the Gulf of Mexico); and (iii) provide critical habitat for fish (excluding Alaska, Louisiana produces the Nation's largest commercial marine fish landings).

Louisiana, however, is losing its coastal wetlands at an alarming rate. These losses account for 90 percent of the total coastal marsh loss occurring in the Nation. Since the 1930s, coastal Louisiana has lost over 1,880 square miles of land. Louisiana continues to lose coastal wetlands, and it is estimated that Louisiana will lose an additional 630,000 additional acres of its coastal wetlands, swamps and islands by the year 2050.

To address this crisis, in 2005, the Louisiana Legislature created the Coastal Protection and Restoration Authority ("CPRA") and required it to develop a coastal master plan and update it every five (5) years. On May 22, 2012, the Legislature unanimously approved the 2012 Coastal Master Plan. CPRA is in the process of updating and approving the 2017 Coastal Master Plan.

Following approval of the 2012 Coastal Master Plan, state agencies were directed by Executive Order BJ 08-07 to "administer their regulatory practices, programs, contracts, grants

and all other functions vested in them in a manner consistent with the Master Plan and public interest to the maximum extent possible." As set forth in the Coastal Master Plan:

> CPRA's mandate is to develop, implement, and enforce a comprehensive protection and restoration master plan for coastal Louisiana. . . . We believe a healthy deltaic system supports all river uses and the river should be managed for ecosystem restoration, navigation, and flood risk reduction holistically. . . . . Restoration, navigation, and flood control along the Lower Mississippi are all concerned with the timing and amount of water and sediment delivered from upstream. In a watershed as vast as the Mississippi's, changes in relatively small areas can induce significant changes downstream. . . . The success of any type of project along the lower Mississippi River is directly tied to understanding the dynamics of the entire Mississippi River drainage basin.

Draft Coastal Master Plan, 2017, pp. 31, 158. The Coastal Master Plan is based on reviews by the scientific community, public hearings and stakeholder input, and the plan is updated every five years to adapt to changing circumstances and to incorporate advances in science and engineering.

To be consistent with the Coastal Master Plan, a project must achieve one or more of the Coastal Master Plan's objectives and must not be detrimental or conflict with any projects in the Coastal Master Plan. The use of renewable sediment sources is a fundamental principle of the Coastal Master Plan. Draft Coastal Master Plan, 2017, p. 142. "Mississippi River-based sources of sediment are renewable approximately every 5 years, while other borrow areas are not considered renewable." Draft Coastal Master Plan, 2017, p. 81. Thus, "as stated in [the] master plan principles, [CPRA] will strive to use sediment from renewable sources, such as the Mississippi River, or from outside the coastal system, such as the Gulf of Mexico, for marsh creation projects." CPRA, 2017 Coastal Master Plan Project Development Program, Screening Criteria, available at http://coastal.la.gov/wp-content/uploads/2013/09/2017-Coastal-Master-Plan-Project-Development-Program.pdf.

DISCUSSION

Although LRAM provides a streamlined and user-friendly method for assessing compensatory mitigation, it fails to measure the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions (*i.e.*, the physical, chemical, and biological processes that occur in ecosystems) and services (*i.e.*, the benefits that human populations receive from functions that occur in ecosystems) caused by activities authorized by Corps permits. It may be appropriate to infer functional values and services based on ecological conditions when assessing projects impacts; however, more information is required to adequately measure the functional values and services provided by compensatory mitigation projects.

LRAM's methods for calculating mitigation potential are inadequate because they fail to adequately address the differences in ecological value and lift provided by different mitigation approaches preferred for the watershed and do not adequately incorporate risk. Under LRAM,

there is no incentive to ensure the quality of mitigation sites. Both buyers and sellers have incentives for quick and cheap mitigation. Sellers, with exception of Jesuit Bend, have universally chosen the inferior and inexpensive restoration method of agricultural conversion, which does not reflect the Coastal Master Plan documented demand in coastal Louisiana for introduction of renewable sediment. The permitting of these banks without considering the relative benefit of these approaches in a watershed context is inconsistent with the objectives of the CWA and EPA's no net loss policy.

A. LRAM is Not Consistent with the Clean Water Act and the 2008 Mitigation Rule.

1. LRAM fails to adequately consider "environmentally preferable" methods to establish compensatory mitigation and fails to properly evaluate pre- and post-compensatory mitigation project site conditions.

As discussed above, the Corps is required to consider a number of factors when considering "environmentally preferable" methods, including the ecological benefits of the mitigation, likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of compensatory mitigation. *Id.* Compensatory mitigation decisions must be based on what is environmentally preferable. 73 Fed. Reg. at 19629. Despite claiming that "[t]he mitigation type evaluates the net level of functional change to a site associated with ecological lift provided by the mitigation work plan," LRAM grossly oversimplifies these factors and fails to comply with the 2008 Mitigation Rule directive to base compensatory mitigation decisions on environmentally preferable methods. Further, LRAM fails to properly evaluate pre- and post-compensatory mitigation project site conditions as required by the Corps' own regulations. *See* 33 C.F.R. § 332.8(o)(3).

For example, LRAM identifies one mitigation type as "re-establishment," which is defined by LRAM as:

> [T]he manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Louisiana Wetland Rapid Assessment Method for Use within the Boundaries of the New Orleans District, Interim Version 1.0 ("LRAM Interim 1.0"), pp. 3-4. CEMVN further describes this mitigation type as:

> The proposed site is a former wetland having lost the necessary hydrologic component to support hydrophytic vegetation. Potential sites include agricultural areas or maintained pasture areas. The mitigation plan includes the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland.

OR: Site is predominantly open water. Sponsor to deposit dredged material to an elevation conducive to tidal marsh re-establishment, plant dredged material and restore/create small tidal channels for fisheries access.

LRAM Interim 1.0, pp. 35-36. In assigning the mitigation value for these different types of re-establishment projects, LRAM does not distinguish between marsh re-establishment projects that create land within open water areas and reversion of existing agriculture/pasture lands to the previously existing habitat by breaching of crop levees, plugging ditches and canals, and/or planting of wetland species. Both of these types of "re-establishment" projects are assigned the same mitigation value of six (6). However, these two types of "re-establishment" affect aquatic resources differently partly because of their pre-restoration conditions and partly because of their post-restoration conditions.

In its pre-restoration conditions, shallow open water provides lower levels of wetland functions than wet pasture and farmed wetlands, especially regarding habit for waterbirds for reducing nutrient levels in water draining from adjacent agricultural lands. On the other hand, pastures provide habitat for a wide variety of waterbirds worldwide. *See*, *e.g.*, Navedo *et al.* (2013), Colwell and Dodd (1995), and literature cited therein. Even farmed wetlands, if in the form of rice cultivation, can provide significant habitat for breeding and migrating waterbirds worldwide (Pernolett, *et al.*, 2015; Huner, *et al.*, 2002). Shallow open water, however, provides little waterbird habitat unless it is adjacent to emergent vegetation (O'Connell and Nyman 2010). Likewise, shallow open water provides much less nutrient removal function than vegetated habitats as natural wetlands (Risgaard-Peterson and Jensen 1997) and farmed wetlands where oxidized rhizospheres drive denitrification (Arth, *et al.*, 1998; Penton, *et al.*, 2013). Because of these effects of emergent vegetation on waterbirds and denitrification, restoring wet pasture and farmed wetlands provides much less increase in aquatic resources than restoring shallow open water.

In their post-restoration conditions, restorations accomplished by filling shallow open water with dredged sediments can provide significantly greater levels of aquatic resources than restoration accomplished by making wet pasture and farmed wetlands more wet by breaching levees and plugging ditches. The reasons for these differences relate primarily to hydrologic connectivity between the restored site and the watershed. With both approaches, the elevation of the restored site, relative to the elevation of water levels adjacent to the restored site, largely controls the type and level of functions in the restored wetland. With both approaches, there will be little wetland function if the elevation is so low that flooding prevents emergent vegetation from reaching the density found in natural wetlands. When the elevation is too low, wetland functions can only decline in future years because subsidence and sea-level rise continually will increase flooding. With both approaches, there also will be little wetland function if the elevation is so high that the restored wetland floods less than natural wetlands. Flooding controls use by estuarine-dependent nekton (Baker *et al.*, 2013) and waterbirds (Bolduc 2008) as well as the degree to which nutrient-rich water can interact with emergent wetlands. When the elevation is too high, wetland functions eventually will increase and approach those in natural wetlands because of subsidence and sea-level rise.

A crucial difference between emergent wetland restoration accomplished by filling shallow open water with dredged sediments and emergent wetland restoration accomplished by making wet pasture and farmed wetlands more wet is the likelihood that the elevation of the restored sites will create flooding patterns that maximize emergent wetland functions. Restoration via filling open water areas with dredged material will more often create ideal surface elevations because the final elevation is targeted based on surveyed elevation of nearby natural wetlands and on nearby water level data often spanning several years. The most likely deviation from ideal elevations with dredged material is excessive elevation, which will become more ideal over time because of subsidence and sea-level rise. On the other hand, restoration via the plugging of ditches and the breaching of canals will more often produce a surface elevation that is too low because former wetland areas used for agriculture in coastal Louisiana generally have lost a foot or two of elevation during cultivation because the original peat soils have been oxidized for decades. Over time, flooding can only increase unless water levels are managed.

Thus, re-establishment projects that create land by depositing dredged material in open water manipulate the physical, chemical and biological characteristics of the ecosystem; conversion of agricultural/pasture only restore a portion of these functions. LRAM not only fails to adequately measure the functional values and services provided by compensatory mitigation projects, it advertently favors the conversion of farmland and pastures into emergent wetlands over the conversion of shallow open water into emergent wetlands.

2. LRAM fails to properly use a watershed approach to establish compensatory mitigation.

CEMVN acknowledges that it is required to use a watershed approach to compensatory mitigation. LRAM Interim 1.0, p. 9. The proposed watershed approach used in LRAM, however, (i) fails to apply the correct watershed approach and (ii) only applies to forested impacts, not to marsh impacts.

Although coastal Louisiana already has an established watershed approach (the Coastal Master Plan) and the Corps is required to consider non-regulatory approaches (*i.e.*, the Coastal Master Plan) and apply the watershed approach if it is appropriate and practicable, LRAM fails to consider and apply the Coastal Master Plan.

It is "appropriate and practicable" for LRAM to adopt the Coastal Master Plan as its watershed approach. The Coastal Master Plan meets each of the established regulatory criteria for a watershed approach:

- It considers the types and locations of compensatory mitigation projects that will provide the desired aquatic resource functions, which will continue to function in a changing environment.

- It considers the habitat requirements of important species, habitat loss and conversion trends, and current development trends, as well as other regulatory and non-regulatory programs that affect the watershed.

- It includes the protection and maintenance of terrestrial resources.

- It considers the suite of functions typically provided by the affected aquatic resource.
- It considers location factors, such as hydrology and surrounding land use.
- It considers the appropriate watershed scale in guiding compensatory mitigation.
- It seeks to strategically select compensatory mitigation sites to maintain and improve the quality and quantity of aquatic resources within the watershed.

The watershed approach adopted by LRAM fails to comply with these regulatory criteria. The coastal zone of Louisiana is dramatically changing, and LRAM fails to account for this by assigning the same mitigation value for ag-conversion marsh projects and marsh re-establishment projects that create land within open water areas. The mitigation values assigned by LRAM clearly are not "as specific as possible to enhance the usefulness of the approach in determining compensatory mitigation requirements."

The Corps' regulations also address the scale of the watershed providing that "the size of the watershed approach should not be larger than is appropriate to ensure that the aquatic resources provided through the compensation activities will effectively compensate for adverse environmental impacts resulting from activities authorized by DA permits." 33 C.F.R. § 332.3(c)(4). However, with respect to marsh impacts, LRAM uses only two services areas, the Deltaic Plain and Chenier Plain.

On September 21, 2016, CEMVN issued a "Special Announcement" notifying the public of changes to the service area for coastal marsh mitigation banks. CEMVN added new hydrologic unit codes ("HUCs") to the Deltaic Plain service area and allowed other mitigation banks in the Deltaic Plain to expand their service areas to the entire Deltaic Plain. Overnight and retroactively, Jesuit Bend Mitigation Bank went from being the only primary mitigation bank in eight HUCs to competing with legacy mitigation banks.

LRAM's use of two broad service areas for marsh impacts not only fails to comply with the watershed approach and creates inconsistencies between CEMVN and the Louisiana Office of Coastal Management ("OCM") mitigation determinations, it destabilizes the private mitigation market. Mitigation bankers, such as Restoration Systems, made investment decisions based on an established service area. Retroactively changing a service area creates uncertainty and provides disincentives for private companies to invest in restoring Louisiana's coastal marshes.

Each of the requirements and considerations of the watershed approach set forth in 33 C.F.R. § 332.3(c) and the mitigation site selection criteria set forth in 33 C.F.R. § 332.3(d) are theoretically supposed to be evaluated and used each time the Corps assesses mitigation requirements for a given permit. The use of mitigation banks is intended to stream line this assessment because this analysis has theoretically already been done during the review of any given mitigation bank. However, by failing to properly apply the watershed approach, LRAM fails to account for these criteria and comply with the CWA and regulatory requirements.

B. LRAM is Not Consistent with the Coastal Master Plan.

In addition to failing to apply the Coastal Master Plan as the appropriate watershed approach, LRAM is not consistent with the Coastal Master Plan. As stated in the Coastal Master Plan, arguably the most comprehensive watershed plan in the nation, "[g]iven the emergency facing coastal Louisiana, it is imperative that all government agencies act quickly and in accordance with the master plan." Draft Coastal Master Plan, 2017, p. 47.

The primary focus of Louisiana's Coastal Master Plan is converting estuarine waterbodies into emergent wetlands through either sediment diversions or placement of dredged material. When dredged material is used to create land, the Coastal Master Plan strives for the use of a renewable sediment source. LRAM should reflect this priority. LRAM's effectiveness at sustaining aquatic resources in Louisiana's coastal zone could be improved if it prioritized use of renewable sediment sources (*i.e.*, sediment from the Mississippi River, the vast majority of which will be deposited off the continental shelf if it is not dredged from the river) over the use of non-renewable sediment sources (*i.e.*, sediments deposited in Louisiana's coastal lakes and bays).

LRAM again fails to distinguish between re-establishment projects that use a renewable sediment source and projects that use an inland, in-system borrow source. In addition to failing to account for the benefits of adding a renewable sediment source to coastal Louisiana, LRAM fails to account for ecological impacts associated with using inland, in-system borrow areas. As found by the Water Institute of the Gulf:

> The use of inland, in-system borrow sources is restricted in the Master Plan (CPRA, 2012). Marsh creation sites in the past have been constructed using sediment from nearby inland borrow sources, if project planners and designers could not feasibly retrieve sediment from an offshore or riverine borrow site due to excessive conveyance distance or other project restraints. Ecological concerns need to be accounted for in these situations, as inland waterbodies are extremely susceptible to small variations in turbidity, dissolved oxygen, and temperature change (Allen & Hardy, 1980). When considering an inland borrow source, an important factor is the depth of the water body being used as the borrow source. This in turn will limit the size and type of equipment to be used.

Clark, *et al.*, 2015.

C. Proposed Solutions.

1. LRAM's mitigation factors and values should be modified to reflect the dedication to watershed priorities, ecological lift and relative sustainability provided by different restoration approaches.

Subcategories of the "re-establishment" mitigation type should be added to accurately reflect the functional values and services provided by compensatory mitigation projects. Restoration Systems proposes the following:

Factor	Option		m value
Mitigation Type	Re-Establishment	Renewable sediment	10
		Non-renewable sediment	8
		Hydrologic restoration	7
		Hydrologic restoration of existing agricultural/pasture lands	6
	Rehabilitation		5
	Enhancement		3
	Preservation		0.4

LRAM also provides mitigation values for project site management, which refers to the level of maintenance or management that is required to maintain wetland hydrology at the mitigation project site. Mitigation values are assigned for the following categories: none (0); passive (-1); and active (-2). The hydrology of mitigation projects within existing leveed areas is controlled by the levees and these projects should be assigned a -1 m value for passive management. If such projects also control or regulate water or salinity levels by gated structures, variable crest weirs or similar structures, such projects should be assigned an m value of -2.

With respect to negative influences (*i.e.*, anthropogenic influences, which may occur either internally, adjacent to or within the surrounding landscape of the assessed wetland, that have a deleterious effect on wetland functions and condition of a mitigation project site), this factor should focus on "negative influences [that] reduce the ability of a restored/enhanced wetland to attain maximum effectiveness in providing wetland functions and services such as wildlife habitat and water quality enhancement." LRAM Interim 1.0, p. 37. These negative influences should also apply to "re-established" wetlands. For example, the hydrology of mitigation projects within existing leveed areas is impacted by the levees (non-tidal), and an m value of -1 should be assigned. With respect to projects that are adjacent to levees that do not influence wetland functions or conditions, such projects should not be penalized. In fact, it could be argued, as did Louisiana's 2012 Coastal Master Plan, that restoration projects that protecting levee systems should be prioritized.

LRAM should add an additional mitigation factor to evaluate mitigation sites: positive influences. As provided in the Corps' regulations, the watershed approach "includes the protection and maintenance of terrestrial resources, such as non-wetland riparian areas and uplands, when those resources contribute to or improve the overall ecological functioning of aquatic resources in the watershed." 33 C.F.R. § 332.3(c)(1). Thus, where a compensatory mitigation project protects a levee, uses a renewable sediment source, or exceeds a determined percentage of a re-established area, such projects should be given an m value of 0.5 to 1.0 depending on the value of the additional beneficial effects on wetland functions and condition of a project site.

2. Service area re-issuance.

In addition to adjusting the LRAM mitigation values to adequately account for the benefits and risks of various mitigation types, CEMVN should also address the service area

issue. In addition to applying the appropriate watershed approach (*i.e.*, the Coastal Master Plan), LRAM should apply the appropriate watershed scale and service areas.

It is our understanding that CEMVN reissued services areas to make more credits available in the coastal zone.[1] However, by the time the policy was implemented, the apparent lack of available credits had already been significantly addressed by the approval of Jesuit Bend Mitigation Bank. In any case, an approach that retains the originally-approved Primary Service Areas for each bank – but proceeds with the reissuance of Secondary Services Areas encompassing the entire Deltaic Plain or Chenier Plain – would respect investments made based on earlier policy. Once credits in a Primary Service Area issued before September 21, 2016 are exhausted, banks would be allowed to take advantage of expanded Secondary Service Areas.

The approach to service area modifications suggested above is colloquially known as a "grandfather clause" and is a commonly utilized and entirely acceptable "good government" regulatory approach.

CONCLUSION

In conclusion and to avoid any misunderstanding, we provide the following summary and consequences of our proposed approach.

1) We do not seek to modify LRAM outside the coastal zone, and our comments apply only to banks within that region.

2) We do not seek to modify LRAM with respect to assessing adverse impacts associated with permit applications.

3) Our proposed LRAM modifications will not increase the cost of private development and public works programs. Rather, our modifications reflect the ecological benefits and risk of various mitigation types and would result in roughly equal pricing between the existing coastal bank credits and provide an even playing field for pricing given the extraordinarily expensive work of coastal land building.

We look forward to CEMVN drafting and implementing a final LRAM that efficiently and appropriately assesses compensatory mitigation requirements, respects private investment, and leads to an improved coastal landscape based on the watershed planning principles of the 2008 Rule and the CWA.

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[1] Arguably, mitigation banks that do not convert converting estuarine waterbodies into emergent wetlands through either sediment diversions or placement of dredged material should not have large service areas, such as the Deltaic Plain or the Chenier Plain because these types of projects would not meet the standards of the Coastal Master Plan.

Sincerely,

RESTORATION SYSTEMS, LLC

George Howard

Attachment

cc: Murray Starkel
The Honorable Garret Graves
The Honorable Steve Scalise

REFERENCES

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